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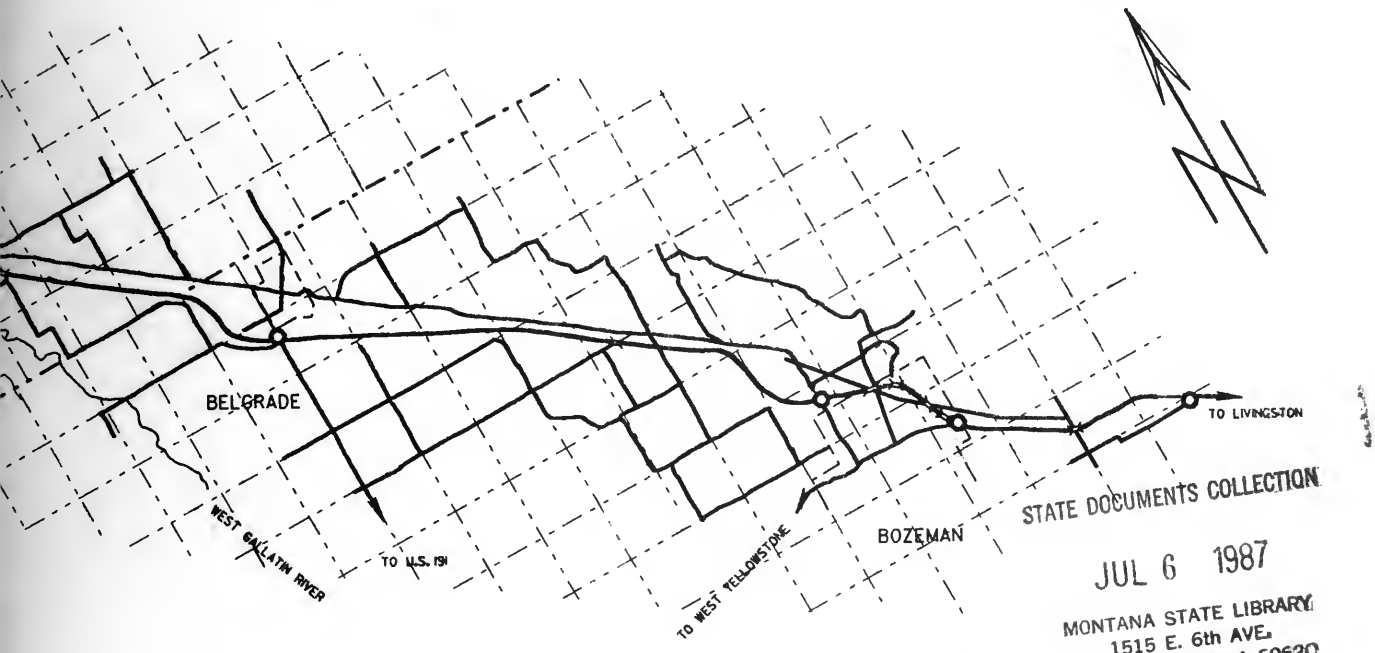
INFORMATION TECHNOLOGY IN MONTANA STATE GOVERNMENT

A Report on Statewide Information System Plans for Fiscal Years 1988 & 1989



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Computers and software systems have provided the State of Montana with opportunities to improve the quality of government services and reduce costs. The accomplishments described within clearly demonstrate the pervasive use of computers in government agencies. They have helped to design our roads, pay Medicaid claims, employ the jobless, publish government documents, research wildlife activities, monitor pesticides and pest outbreaks, educate employees and students, manage state lands, fight fires, and communicate across great distances. It is clear that information system tools have become an integral part of government.

This report of agency accomplishments and plans summarizes the work of the people who have made new technologies work for Montana government and Montana citizens. Information system costs amount to approximately $17.5 million dollars annually, or less than 1% of the state budget. This investment provides a basis for agencies to fulfill their fiduciary responsibilities, and respond to the unique and changing needs of people.

Ellen Feaver

Ellen Feaver, Director
Department of Administration

INFORMATION TECHNOLOGY
IN
MONTANA STATE GOVERNMENT

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FOREWORD

Information system plans in the State of Montana are developed by each agency. Many people contribute their time, effort and enthusiasm to planning how automation can best serve the interests of Montana citizens. This summary describes, in a very cursory way, Montana's accomplishments and plans. Behind the scenes, the managers, analysts, programmers and clerical staffs make it all happen. They are the people who find innovative ways to use rapidly changing technology to make government more effective.

> "Whatever other national goals we may decide on, the first - because it is necessary for the achievement of all the others - must be the development of processes by which the information-handling capacity of the computer is employed routinely to aid the judgment of those in enterprise and government whose decisions affect the lives of others."
>
> John Diebold
> "Making the Future Work"
> 1984

NEW DIRECTIONS

Charting a course for automation decisions is not unlike selecting a destination in open seas. With technology changing daily, everyday decisions can significantly alter the State of Montana's automation progress. Agency information system planning efforts provide the State of Montana with the ability to deploy computers at the right time, with proper management controls and involvement. The direction of agency plans coincide with the following major issues:

Productivity through Automation

More and more, the computer is seen as a way of helping the State position itself for the future. Because of the tremendous wealth of information available to government, agencies are turning to information management systems to provide the foundation for improved decision-making.

Traditional patterns--where information flows by paper and the most sophisticated tool is the typewriter--are giving way to dramatic new approaches with far reaching impact. Opportunities exist to significantly reduce administrative costs, eliminate time delays which consume a large percentage of state employees' working hours, and provide more time for priority issues.

New and Better Services for Citizens

The expanding role of information systems is reshaping traditional concepts of public policy. The challenges of increased demand for information and reduced personnel resources, will compel government to construct information systems which provide the base for responding to and anticipating changes in public service requirements. Information has become an asset - as vital as people, money, machines, and material.

Linking Remote Offices/Counties

Given the proper application of new communication technology, we can expect to see major positive advances in our ability to communicate with people throughout the state. The time barriers can be overcome with new methods that permit us to communicate at times most convenient to us, and at reduced cost. Telephone interruptions or telephone tag situations need not disrupt our "conversations". New methods will not displace the telephone, but simply offer a means to enhance the exchange of information.

NEW DIRECTIONS

Data and Records Management

Because so many people in state government today are involved with information, the need to adopt and adhere to strict procedures for its creation and use is critical to maintaining low cost governmental services. The state has a staggering variety of information processing equipment. Information may be recorded as data, text, voice, or image; and on various media, such as paper, electronic devices, photographic film, or audio recordings. Like any other valuable asset, information must be subject to sound management practices and controls.

The State of Montana needs to implement practices to minimize duplication of data and avoid accumulation of unnecessary information. Managers need to review and approve what information is generated or collected and the output medium used, as well as how often and to whom it is distributed. Agencies must organize and structure their information for maximum clarity and usefulness.

Developing the Computer Skills of State Employees

Computer literacy can be thought of as the capacity to use computers, just as literacy can be equated to the capacity to use language. Our level of literacy determines our ability to understand what we will do with computers and workstations. In other words, employees can't know how they **will** use a computer until they know **how** to use a computer. The State of Montana is climbing this literacy curve by making computers and training more available to employees. As employees master the use of computers they begin to understand how to apply computer technology to increase their efficiency. They will begin to address old problems in new ways and get better results.

Equipping State Government

The increasing computer literacy of state employees has created demand for more computer equipment. The demand is further stimulated by decreasing cost of hardware. Managers in state government need to make investments in automation by carefully allocating resources to functions which contribute directly to important state and agency objectives. The state needs to equip workers whose activities have the most value to state government. The process of equipping state government with low cost, quality equipment and software, requires procedures that can respond to fluctuations in the computer marketplace.

NEW DIRECTIONS

User Developed Systems

In the past, software programs were usually developed according to a traditional method: data processing professionals built programs from scratch, going through a development cycle that had defined phases and subphases. The traditional model is still one way to develop systems, but advancements in technology have created alternatives. Users can, without relying on programming staffs, streamline processes by customizing microcomputer spreadsheet and database software. In many cases, state employees will find these systems significantly boost their productivity.

Since user developed systems are not always adequately tested, they may be difficult to transfer from one group to another. In cases where a system is crucial to operation of an agency, data processing management should be involved in the decision making processes to insure adequate control of the information.

Building System Models (Prototypes)

Programmers and analysts are using new software to build working models of actual data processing applications. By tailoring the traditional development process to take advantage of the flexibility of database software, systems can be built faster. This approach is more forgiving of changes in requirements, and systems can be tailored to user needs at less cost. Furthermore, maintenance cost over the life of the system is also reduced.

Growing Computer Usage

Increased capacity and decreasing rates of central computer services have led to expanding use. Workload increases throughout state government and agency cost cutting activities are sighted as reasons for growth in central computer processing. Investments in productivity software for systems development and office automation provide opportunities for agency to leverage their personnel costs and take advantage of a decreasing cost trend.

Sharing of Secure Data

As the number of end users continues to multiply and the data processing background required to access information drops, security becomes a critical and complex issue. Maintaining the security of the State of Montana's information systems will require an ongoing partnership between the data processing personnel, audit staffs, and agency management.

There is a need to match each security risk with an appropriate safeguard against that risk. Information should be shared within the constraints of the laws.

Respecting Individual Rights

The Constitution of the State of Montana guarantees an individual the right to privacy and the right to know. Sharing of governmental information must respect these rights. Release of information without procedures to insure privacy of individuals, places citizens and services at risk. Though case law is lacking in many instances, procedures for determining an acceptable balance between disclosure and protection are available through agency legal staffs and the Attorney General's office.

Recovering from Disasters

The likelihood of a disaster occurring is low, assuming that normal preventative measures are in place. But the consequences of a disaster can be high because state government is increasingly reliant on timely information processing. To lessen this impact, disaster contingency plans need to be developed to document alternative means of operating.

With the availability of a backup computer processor at the Montana National Guard Armory, an opportunity to recover critical state systems exists. Successful recovery, however, necessitates that systems be specifically designed and documented for prompt transferral to the backup processor.

For further information specific to a particular agency, refer to the following discussion of the State of Montana's information system accomplishments and goals.

ACCOMPLISHMENTS

ADMINISTRATION	A pilot project to evaluate the feasibility of electronic messaging and document distribution via Distributed Office Support System (DISOSS) was successfully completed. Many divisions have acquired personal computers, automating manual processes and using DISOSS to communicate. Two large documents created using ALTER/TIPE software on the state mainframe were successfully transmitted to Publications and Graphics typesetter. Central computing capacity was upgraded and two separate data communications networks were merged into a cohesive state network. A feasibility analysis and plan for improving network transmission facilities was completed. The Social Security Program was modified to reduce processing time and meet Federal reporting requirements. An online system for Teacher's Retirement was implemented.
AGRICULTURE	The Plant Industry Division automated many of its administrative functions such as billing, reporting , licensing of feed, fertilizer and grain dealers, and registration of 4500 feed/fertilizer products and 5000 apiaries. These improvements significantly reduced staff time to perform these functions. In addition, a telecommunication agreement with USDA was established to alert Montana regarding pest outbreaks. The State Hail Insurance Division implemented a system, based upon 68 years of historical data, to set rates for hail insurance in each county. To save data processing costs, the Environmental Management Division has developed microcomputer based systems for registration of pesticides, licensing of private applicators, and pesticide sales and use reporting.
STATE AUDITOR'S OFFICE	By installing an agency wide office automation computer system the State Auditor's Office has been able to significantly improve internal communications and decision making. By replacing outdated equipment and manual methods, inquiries are responded to quickly and completely. An online training and applicant flow system was made available to state agencies. This system provides an expeditious means to comply with Equal Employment Opportunity reporting requirements. The Payroll/Personnel/Position Control manual was rewritten and reorganized to aid in the effective use of this system. A number of enhancements were made to the warrant writing system to improve its efficiency and enable the implementation of a disaster/ recovery plan. An in depth study of long term needs of the warrant writing system was completed resulting in a cost/benefit report on the available alternatives.

GOALS

The Department of Administration wishes to expand its document distribution and calendaring system, and use personal computers to further automate manual processes. The Accounting Division plans to implement a means to input transactions via terminals into the Statewide Budgeting and Accounting System. Information Services Division intends to: install remote communication controllers; acquire and support software and hardware to meet state computing needs; help agencies manage data and records; and test disaster plans for applications critical to state government. The Purchasing Division intends to implement an automated purchasing system to gather and disseminate data to all State agencies; and to upgrade Property and Supply's distribution system. The Board of Investments goal is to provide a system to allow agencies to access daily investment activity. To improve classification methods, the Personnel Division proposes to adopt a quantitative job evaluation method. Public Employees Retirement Division proposes to upgrade the retirement system to expedite processing of refunds.

The Plant Industry Division intends to: enhance software to issue licenses, registrations and manage grain samples; and purchase equipment and software for mapping of apiaries. The State Hail Insurance Unit plans to use a database system to provide counties with reliable data concerning hail insurance policy holders. The Environmental Management Division plans to: convert its Pesticide Registration and Licensing System to a microcomputer; improve its system of recording use and sale of pesticides, and its capabilities of managing pest surveillance information. The Wheat Research and Marketing Unit plans to use microcomputers for pricing, freight rates, wheat and barley production, markets and world trade information. Centralized Services Division intends to upgrade its central system and automate the budgeting function. The Agricultural Development Division intends to use a microcomputer for the Rural Agricultural Development Loan and Agricultural Assistance programs.

The State Auditor's Office intends to expand the existing office automation system to manage its large volume of documents and provide adequate access by employees. Develop automated systems to insure prompt efficient service to insurance consumers and allow close monitoring of insurance company activities. The systems should streamline license renewals, complaint handling and access to insurance company information. Continue to maintain the accuracy and timeliness of the Payroll/Personnel/Position Control System. Determine the cost/benefits of replacing a number of the data entry forms with online processes. Implement a Warrant Writing System which eliminates the reliance on outdated equipment and heavy clerical support. Develop an application to automate securities licensing and investigating.

ACCOMPLISHMENTS

COMMERCE	A mini-computer was installed to serve department-wide automation requirements. The system includes word processing, electronic spreadsheets, relational database, electronic mail and direct access to the state mainframe. A system was developed to automate professional and occupational licensing. Administrators and employees save time in preparing documents, budgets and financial projections. The standardization of department-wide functions allowed the department to partially absorb mandated budget cuts.
FISH, WILDLIFE, & PARKS	The Department of Fish, Wildlife & Parks has installed 54 microcomputer systems at seven regional headquarters, Bozeman research office, Kalispell Special Projects office, and Helena headquarters. Also installed at various locations was equipment for communication between new and existing microcomputers, one image scanner/optical character reader for designing pamphlets and brochures, one film image recorder for public presentation slide preparation, and two micro-mainframe connections. Over 300 hours were spent by the data processing manager in training employees in the use of both hardware and software. Over 40 employees attended state sponsored training. The end result of this activity has been an improvement in the quality and timeliness of communications both within the department and between the department, other agencies, and the public.
GOVERNOR'S OFFICE	The Clark Fork River Coordination Project combined agency data files and published an interim report. A database was developed, by the Lt. Governor's Office, to disseminate information regarding the 1989 Statehood Centennial. The Intergovernmental Review Clearinghouse automated its statistical reports which were previously prepared by hand. The process of producing the Executive Budget Book and Appropriation Report was modified to interface directly with publishing equipment. This should improve print quality and reduce printing time. The Office of Budget and Program Planning installed a microcomputer for each analyst to facilitate uniform budget analysis and projection procedures. A fiscal note tracking mechanism was developed so that notes can be easily traced to applicable bills and versions of same; and to help sponsors monitor notes. The Mental Disabilities/Board of Visitors began using a microcomputer for budgeting, reporting and mailings.

GOALS

The Weights and Measures Division plans to develop and implement an automated licensing and inspection system to reduce the time consuming manual processes. An electronic means to analyze the condition of state financial institutions is needed by the Financial Division. Local Government Services intends to provide portable microcomputers for field auditors to eliminate the need to reenter data at the central office and to expedite the audit process.

The Department of Fish, Wildlife and Parks plans to purchase additional hardware and software to expand the availability of computing resources. Fish feeding systems at six hatcheries need to be analyzed to justify the equipment needed to automate. The process of designing construction projects for FWP can be improved by using computer aided design approaches. The current budget system, should be analyzed to determine a means to improve the system's flexibility.

Governor's Office plans to use personal computers include: improve the efficiency in monitoring and preparing the office's biennial budget request; coordinate water quality and aquatic resource investigation of the Clark Fork River Basin; access the U.S. Government Federal Register and Legislate for tracking U.S Congressional activity. An in-house study is planned to analyze data processing methods which could facilitate filing and retrieval of large volumes of correspondence and office records. The staff will continue to refine the Governor's and Lt. Governor's scheduling system. The Office of Budget and Program Planning plans to: make the personal computer interface to the Executive Budget System available to the state agencies; further automate the interface between the Statewide Budgeting and Accounting System and the Legislative Appropriation and Revenue Estimate Systems; and complete the development of a disaster recovery plan.

ACCOMPLISHMENTS

HEALTH AND ENVIRONMENTAL SCIENCES	Microcomputer acquisitions were reviewed by the Department of Health's Information Advisory Committee to insure compatibility of data processing programs and equipment. Systems were installed and networked throughout the department and contributed to improved productivity of support staff. Compatibility of equipment helped to minimize management time in resolving problems in system implementation. A centralized word processing staff was successfully administered. The advisory committee also initiated a project to determine departmental information and data management needs.
HIGHWAYS	The Department of Highways installed a comprehensive Computer Aided Design and Development system, with interactive graphics capability, to reduce the time required to design highway projects. Federal reporting procedures were streamlined by a new Bid Letting System, the core of a Contracts Management System. A data processing project management and billing system was developed. A Right-of-Way database for tracking negotiations, appraisals, and legal actions was completed. An online payroll entry system for headquarters personnel was implemented. The first phase of the Materials Lab Results information system was completed. The Highway Cost Accounting System was upgraded. Personal computers were installed in Districts and in Headquarters, and communication capability was upgraded. This improved efficiency and allowed greater access to information.
HISTORICAL SOCIETY	The Oral History Program of the Montana Historical Society acquired a personal computer for production of transcripts. A database was implemented to track purchases and donations to the Library and will improve control and access to the collection. Additional terminals were installed in the Archives and Library. Staff has better access to equipment and can perform their responsibilities more effectively. Inventory and sales records for the Museum Store were recorded on a personal computer. The Publications Unit reduced its cost of publishing, by transmitting documents to a typesetter from a personal computer. The Accounting Office computerized the agencies' receipts logging system and federal subgrants accounting. The Preservation Office developed a process to track correspondence, using the Univ. of Montana's computer.

GOALS

The Department of Health plans to develop and maintain a departmental data directory to improve accessibility and management of data stored on computer systems. A variety of training opportunities will be offered to help staff learn more about information processing. Data integrity, security, and recoverability will be included as design considerations of new systems. A financial system is planned to provide timely reports and greater flexibility in allocating resources. Personal computers will be used to maintain and update the annual medical facility survey data, and population projections. Equipment and software is needed for Women, Infant, and Child Certification agencies, to reduce time delays. A laboratory information system is being considered to automate activities from sample receipt to final analysis and billing. Funding for additional data processing staff is also requested. As funds allow microcomputers procurements will be planned.

The Department of Highways plans to use microcomputers in construction field offices to improve timeliness of construction project data. Additional Computer Aided Design and Development equipment is being considered as a means to reduce costs of highway projects. Equipment and software are needed by the Right of Way, and Planning and Statistics Bureaus and two District Offices. Sufficient memory and storage will be required to handle increased applications and users. The Department also plans to develop an integrated financial management system. Enhancement will be made to the Maintenance Management System. The Highway/SBAS conversion project will be completed. The Contracts Management System will be extended to incorporate construction progress estimates. The functions supported by the Materials Bureau data base will be increased for additional quality control.

The Montana Historical Society plans to expand, upgrade, or modify their computer systems to insure adequate storage for database growth and conectivity for additional devices. The Museum Program intends to evaluate and procure a collection management system. The system would be used for loan processing, condition records, insurance tracking, etc. By raising donations for computer equipment, the Historical Society also intends to initiate a project to index old Montana newspapers.

ACCOMPLISHMENTS

INSTITUTIONS	The following data processing systems were developed on the departmental system: Alcohol and Drug Information System; Chemical Dependency Certification; Management Information System; Accounts Receivable Ledger system; Check System; Supply Inventory Monitoring System; Residents Account System; Table File System; Data Processing Equipment Control System and portions of the Adult Correctional Information System. Personal Computers with printers were installed in the many of the institutions across the state. Personal computers are used for a Resident Account System at the Center for the Aged, and an inventory system at the Montana Veterans Home and the Center for the Aged.
JUSTICE	By improving the summary system for DUI convictions, the Highway Traffic Safety Division was able to determine sentencing problem areas. The Criminal Justice Information Network (CJIN) was consolidated with the Department of Administration's data communication network. This upgrade, which included replacement of hardware and software, provided the Law Enforcement community with access to an improved system at less cost. In addition, Montana Uniform Crime Reporting information is being gathered via the CJIN. The Driver License System, was replaced with a new data base system designed to improve the accuracy, timeliness and accessibility of license information. The Juvenile Probation Information System is being totally revamped so Probation Officers will have an automated case management program available for their use. Personal computers have been used for National Fire Incident Reporting and to keep track of fire and arson investigations.
LABOR & INDUSTRY	The Unemployment Insurance Benefit System was rewritten. The improvements enabled the central office to absorb local functions and provide more timely information and services to employers/claimants. A system was installed to automatically communicate unemployment claims/inquiries between Montana and other states. The Division of Workers' Compensation installed major portions of State Compensation Insurance Fund's Policy Service System and converted over 25,000 policyholder files. This system reduced time lags, improved processing of claims, and aided in billing, payment and coverage cancellation. The Employment Policy Division installed a system to process over 5,000 wage surveys, which are the basis for setting prevailing wage rates. The process of estimating employment based upon 2,000 monthly business surveys was automated.

GOALS

The Adult Correctional Information's base system, including a Good Time Subsystem is scheduled for completion by the Department of Institutions. In addition, project plans include development a personal computer based data collection system to transfer information from the institutions to the Adult Correctional Information System and the Automatic Billing and Accounts Receivable System. An in-depth review is planned to assess the need for a fiscal information system. In order for management to make necessary short and long range decisions, a data model will be developed to provide a high level view of the data requirements for the Mental and Residential Service Division. Improvement and expansion of the Supply Inventory Monitoring System is planned. Dial up communication capabilities will be expanded to facilitate exchange of information.

The Legal Services Division intends to develop a litigation management system using existing equipment to improve legal research and management of litigation. The Board of Crime Control plans to assess juvenile justice information requirements and upgrade the current software. In addition, data entry processes need to be improved to provide timely statistical reports to law enforcement administrators. The Highway Patrol Division has plans to implement a means to electronically transfer information between districts and headquarters. To provide accurate and timely exchange of criminal intelligence information, the Criminal Investigation Division intends to develop or acquire a data management system. A thorough systems analysis of the paper flow of the Forensic Sciences Division is planned to identify, streamline and automate common processes. The Driver Services Bureau plans to purchase equipment to automate field offices, and produce management and fiscal reports. The Driver Control System, managed by the Driver Improvement Bureau, will be reviewed to determine means to automate manual processes. The Motor Vehicle Registration and Titling System is scheduled for redesign to overcome structural problems and provide improved service.

The Department of Labor and Industry intends to install a network of personal computers which is capable of sharing files and transferring information between divisions, the central office, the state mainframe and within divisions. Data communication capabilities will be upgraded to meet state network standards. A central database of applicant/participant and employer/business information is needed to share information within the Department and with other departments and avoid duplication of data available within the state. The Job Service Division plans to install a system to test and refer selected applicants to employers. The Unemployment Insurance Division plans to implement systems: to reduce costs and improve access to claimant and employer records: and improve the efficiency of large data entry functions. Testing and installation of the Workers' Compensation Division's automation project is projected to be complete. The Human Rights Division plans to automate its case tracking system.

ACCOMPLISHMENTS

LANDS	Phase I of the Trust Land Management System was completed, providing prompt access to ownership information. The Land Disposition function will enable management at all levels within the Department to quickly and accurately determine how many acres belong to the State Trust by Location, County, Grant, Management Unit, and Total by specific Legal Description. The department installed 46 microcomputer systems and trained over 150 people, increasing efficiency of word processing, budget planning and analysis, and data management. A Wildfire Database was implemented using microcomputers for data collection and the state mainframe for reporting and analysis. The Hazard Reduction System was converted to a microcomputer.
LEGISLATIVE AUDITOR	The process of producing the state's financial statements was improved by: using a microcomputer based audit schedule to document adjustments; adding security to central files to insure integrity; and electronically transferring data to a microcomputer for formatting camera ready copy. Auditors were trained for microcomputer use and auditing. Portable microcomputers were acquired for auditors to use during onsite audits. A system was developed to capture time records and produce management and billing reports.
LEGISLATIVE COUNCIL	The Bill Status System was modified to help users monitor bills in specific subject areas, and to permit access by subject. The Legislative Council has established a Data Processing Planning committee to coordinate data processing direction. The quality of bills and reports was significantly improved by printing on laser printers. Hardware and software was installed which enables the staff to draft correspondence and analyze data more quickly, allowing more time for serving legislators. The process of drafting bills and making amendments was improved by a system which is designed to transfer bills to and from personal computers. A photocomposition system was installed to expedite publishing approximately 30,000 pages each biennium. The system will pay for itself in two legislative sessions.

GOALS

The Department of State Lands plans to complete the analysis and planning for the Internal Administration, Regulatory Compliance, and Service/Assistance functions. To support the managerial, professional and clerical needs for information systems, additional microcomputers and telefax are planned. Uses for microcomputers include: automating purchasing and budgeting processes, managing open cut mining information, gathering onsite fire suppression data, collecting data for crop checking, timber cruising, and range evaluation, and graphics. Plans include a goal to acquire an automated timber model to assist with timber sale analysis. To improve management of computer systems the department is considering establishing a central budget for maintenance, replacement and testing of information processing equipment, and for communication services.

The Legislative Auditor plans to conduct multi-year comparisons of financial and program data by developing a historic database on a microcomputer. Software is also needed to identify agency fund activity which is material to financial reporting and assist in planning agency audits. A standard means to compare agency activity to industry standards is needed. Statistical, spreadsheet, and quantitative software is being considered to expand audit analysis capabilities. Agency legal compliance checklists will be converted to a microcomputer for indexing and cross referencing. Project management software will be implemented to develop and manage audit schedules.

In an effort to provide legislative information to the public, government agencies, legislators and staff, the Legislative Council plans to continue to enhance the Legislative Information (Bill Status) System. To insure continued service and provide a framework for users to access bill and statute text, the current ALTER word processing system will be converted to a system called TextDBMS. The Council also intends to evaluate the feasibility of: exchanging documents with state agencies; creating amendments online as they are proposed in committee or on the floor; sending publications on laser disk; utilizing a local mid-range computer to coordinate in-house networking; installing hardware and software appropriate for each bill drafter on the Legislative Council staff.

ACCOMPLISHMENTS

LIBRARY, MONTANA STATE	MonCat, a microfiche catalog of materials in Montana libraries was produced and distributed. Moncat allows libraries to borrow directly from a library which owns the item and reduces the time needed for interlibrary loans. New state publications received at the Montana State Library were originally cataloged and entered into the Western Library Network database facilitating access to state government information. A Library of Congress system for automating the Library for Blind and Physically Handicapped was investigated and funds requested. The Natural Resource Information System and Natural Heritage Program are under way and in the process of gathering appropriate data.
LIVESTOCK	Microcomputers in the Department of Livestock were used to: account for Laboratory Fees and aid in the timely collection of revenues; implement a Rabies Reporting System; and reduce staff time needed to track and respond to livestock disease outbreaks. A computerized milk testing system was installed in the Bozeman Diagnostic Lab in conjunction with the State Diary Herd Improvement Association. Lab fees will cover the costs of operation. Terminals were installed in the Missoula and Billings livestock markets to record brand and mortgage records so that producers can receive proceeds from sales in a more timely manner.
MILITARY AFFAIRS	Information management requirements were determined and equipment was ordered for the Centralized Services, Veterans Affairs, and Disaster and Emergency Services divisions. The equipment will be networked together to facilitate data sharing and management.

GOALS

The State Library plans to refine and improve utilization of the Western Library Network (WLN). Additional staff has been requested to alleviate the cataloging backlog of state documents funding for . MonCat needs to be reproduced annually, and a supplement produced at mid-year. The Library intends to coordinate a network linking Montana libraries to facilitate resource sharing. Continuing education in the field of automation and technology is needed for librarians. Plans include holding an annual automation symposium for librarians and decision makers and designating a staff member to be responsible for coordinating automation consultation. The Library for the Blind and Physically Handicapped plans to install a system to relieve the staff from routine circulation activities. The Natural Heritage Program plans to complete development of a database of Montana's biological and natural resources. The Natural Resources Information System intends to complete an inventory of existing natural resource data and information sources.

By networking personal computers together the Department of Livestock plans to automate the process of capturing and reporting animal disease and movement within the state. The current process provides virtually no data manipulation or reporting, and requires considerable personnel time. The Brands Enforcement Division plans to acquire equipment to expedite the process of rerecording over 120,000 brands by digitizing brand images. Plans also propose to install terminals in additional livestock markets. The Diagnostic Laboratory Division intends to implement a personal computer system to assist in categorizing, researching and reporting disease diagnoses. Centralized Services Division plans to automate miscellaneous budget and accounting functions and join the online SBAS system when implemented.

A project plan has been developed by the Department of Military Affairs to convert veterans and National Guard member files to microfiche. Also planned for is an electronic mail facility to insure efficient transmittal of information during emergencies. A training program is being considered to familiarize employees with information system capabilities. A need for additional computing and microfiche equipment has been identified.

ACCOMPLISHMENTS

MONTANA ARTS COUNCIL	Two additional personal computers and a letter quality printer were acquired and helped the Montana Arts Council meet expanded workloads. The equipment was made available by the Western States Arts Foundation. The quality of publications produced by the Council has been improved through employment of a graphic workstation which permits the use of a various type styles and the inclusion of charts, graphs and drawings.
NATURAL RESOURCES AND CONSERVATION	Numerous enhancements to the Oil and Gas, and Water Rights data bases were implemented and development of a departmental Loan and Grant Monitoring System was initiated. The Oil and Gas Conservation Division compiled and published a catalog of well cutting and core samples. Microcomputers were installed and/or upgraded throughout the Department of Natural Resources and Conservation. They are employed in a wide variety of tasks such as, document preparation, publishing, budgeting, data gathering, statistical analysis, and communications. Benefits stated include savings of clerical time, reduced time to respond to questions, and the ability for analysts to explore alternative approaches. The departmental computer system was upgraded to allow more concurrent users and applications.
OFFICE OF PUBLIC INSTRUCTION	The Chapter I Achievement information system was rewritten and enhanced by the Office of Public Instruction. The new system requires at least 50% less time to operate, and is no longer dependent upon the Northwest Regional Lab. A personal computer based system was developed to improve control and access to Audio Visual Film Library information. A working prototype of the School Profile system was developed to provide staff access to information regarding officials, districts, and schools in the Montana public school system.

GOALS

The Montana Arts Council plans to implement eight Arts Resource Directory Systems as outlined in the National Standard for Arts Information Exchange. The existing database of organizational granting histories needs to be expanded for Cultural and Aesthetic Grants Management. To assist local art organizations in the use of new technologies, the Council intends to analyze needs for computer applications. Online access to the State's accounting system is needed for effective monitoring of financial activity. Access to the proposed National Arts Information System is also desired. By refining reporting systems, the Council wishes to improve the means by which it conveys to the Legislature the diverse nature and statewide impact of its programs. A system is needed to accumulate tax information on individual grant recipients.

The Department of Natural Resources and Conservation plans to install hardware and software that will meet the department's computing needs through June 1989, since the departmental computer is unable to meet peak period requirements. The Oil and Gas Conservation Division plans to determine a method for providing public access to oil and gas records. In addition, the Shelby Oil and Gas Office intends to acquire equipment to access the Oil and Gas Production system. The Water Rights Division proposes to evaluate and select equipment to meet the computing needs of field offices. To assist the water user's associations in managing their projects, a system is planned to support their financial information needs. Equipment and software is needed to support the Engineering Bureau's computing needs. The Centralized Services Division intends to improve the production of publications and devise means to eliminate the need to completely re-key text from typed or printed documents.

To provide accessibility for users of computer systems the Office of Public Instruction intends to assess needs and relocate computing stations, network equipment together and share devices. Since data collection is time consuming and prone to error, OPI plans to test means to transfer data electronically from schools. A data coordination committee is planned to facilitate management of data and reduce unnecessary collection, handling and storage. In addition, older applications will be reviewed, prioritized and scheduled for possible redesign or replacement.

ACCOMPLISHMENTS

PUBLIC SERVICE REGULATION	An application was implemented to keep track of complaints filed with the Public Service Commission against utilities in the State of Montana. The application produces a number of management reports. The Transportation Division developed procedures for maintaining accurate and timely information regarding motor carriers. The system has reduced work load, and helped to uphold regulations and enforce laws. A procedure was also developed to archive inactive records stored on the departmental computer system, and maintain accurate historical records.
REVENUE	The system requirements for a Revenue Control System to automate the Department of Revenue's cashiering process have been defined. A Child Support Enforcement case history system was implemented and development has begun on payment history functions. A system was developed to track video poker machines and licenses. The Liquor Division completed a comprehensive review and requirements definition of their information needs; and implemented a refined inventory monitoring process. Designed and began development of a department-wide Accounts Receivable System. Defined requirements and prototyped an online Individual Income Tax System. Developed and installed a new Withholding Tax System. Gathered and recorded economic data regarding corporations for evaluation of various tax effects. Completed enhancements to the Computer Assisted Appraisal System and electronically transferred data to twenty counties. Designed and developed an integrated system for the entire Motor Fuels Tax Division.
SECRETARY OF STATE	Development of a system to accommodate central filing of UCC Liens for agricultural commodities was completed and resulted in improved flow of information to statewide lending institutions. Direct access was offered for financial institutions and other interested parties to UCC information.

GOALS

The Department of Public Service Regulation has plans to train its staff in the use of automated tools to improve the quality and timeliness of decisions. Word processing and management techniques will be used to expedite research and improve professional effectiveness. A case management system and a means to provide access to case management files is needed. One objective is to develop and implement procedures to communicate via the departmental computer to state agencies and interested businesses. To handle increasingly demanding software requirements, Request for Proposals will be developed to upgrade hardware and software. Review and updating of the backup and disaster plans and capabilities is needed to ensure that documents and programs can be retrieved and accessed in case of system failure.

Complete all functions of the Department of Revenue's Accounts Receivable System. Develop and install the recently designed Individual Income Tax System. Pilot test electronic filing of income taxes. Equip employees with appropriate equipment to access income tax and withholding information. Automate the process of gathering, storing and utilizing Inheritance Tax, Unclaimed Property, and Cigarette License Tax records. Expand the Corporation License Tax System to capture more information, and improve access to that information. Convert the Welfare Fraud System to provide online access. Develop a new Video Draw Poker System possessing expanded reporting capabilities. Develop and install an online system to support the collection, identification and distribution of revenues. Provide planning, coordination, and implementation support for automated systems development. Acquire the necessary hardware and software to provide capacity and relieve congestion on the Department's current shared logic word processing system. Test point of sale equipment in state liquor stores. Improve the consistency and accuracy of property tax records, agricultural land records and personal property tax records by storing and calculating valuations on the state mainframe instead of county systems.

The Secretary of State's Office wishes to increase the productivity and accuracy of records kept for Notary Publics by completing development and installation of an electronic filing system. An electronic means of recording and tracking land deed transfers is also planned to increase the speed of processing transfers.

ACCOMPLISHMENTS

SOCIAL AND REHABILITATION SERVICES

The Montana Income Maintenance System, which produces public assistance payments, underwent several major modifications to improve the eligibility determination process, the interface to the medicaid system, and the matching to Internal Revenue and Social Security files. Microfiche of real property records was produced for use in verifying property ownership of public asssistance applicants. The department's client database was upgraded to improve accounting and management reporting and was expanded to include payments which were previously produced manually. An additional 29 Medicaid reports were developed, and the process of monitoring fiscal agent payments was enhanced. The Low Income Energy Assistance Payment system was improved to insure proper handling of provider payments.

GOALS

The Department of Social and Rehabilitation Services has initiated a project to provide hardware, software and training to enable local and district offices to access and update SRS data files. The approach is based upon Family Assistance Management Information System available from another state. In addition, the system should provide online access to system manuals to assist in policy and eligibility determination. In an effort to take over all functions of the Montana Medicaid Information System, the department intends to transfer computer processing to the state mainframe and contract with a facility manager for system development, maintenance and claims processing.

EXPENDITURES AND BUDGETS

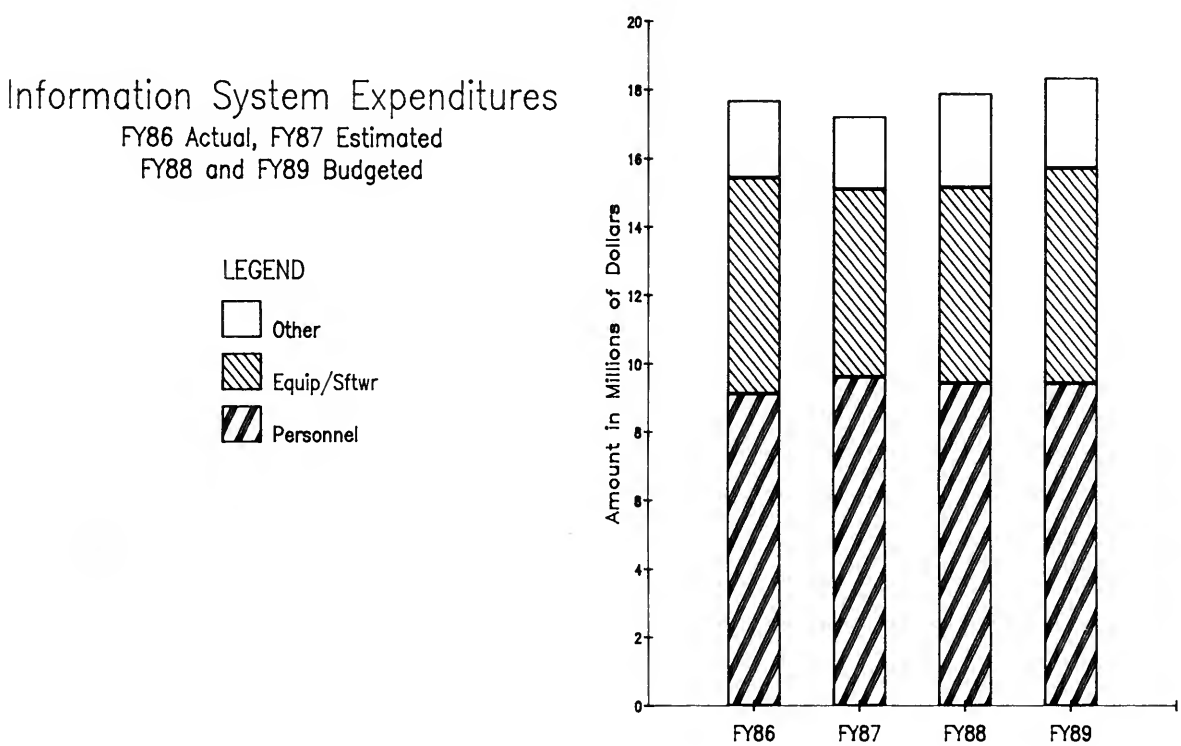
Information systems in the Montana state government cost approximately $17 to $18 million dollars annually. Expenses include outlays for personnel, equipment, software, and other expenses (including supplies, contracted services to private vendors, communication services, and miscellaneous expenses incurred by the central computer services).

Personnel costs, which amount to 51% of Fiscal Year 1986 total expenditures, were derived from budgets by positions classified as information system personnel, less 4% for vacancy savings. Equipment and software costs, which include purchase, lease and rental of multiuser and single user systems, comprise 36% of FY86 total, with other expenses accounting for the remaining 13%.

FY87 estimated costs were based upon five months of actual costs and projected for twelve months. This projection indicates a slight decline for the year. However, the projection has not taken into account that FY87 is a legislative year and agencies often defer capital expenditures until late in the fiscal year, to insure adequate funding.

Budgets for FY88 and FY89 indicate an increase of 1.1% and 3.7% respectively over the FY86 base expenditure. This increase is primarily due to personnel budgets which increase from $9.13 million in FY86 to $9.44 million in FY89, and information system budgets for "Other" which increase from $2.25 million to $2.63 million.

Information System Expenditures
FY86 Actual, FY87 Estimated
FY88 and FY89 Budgeted

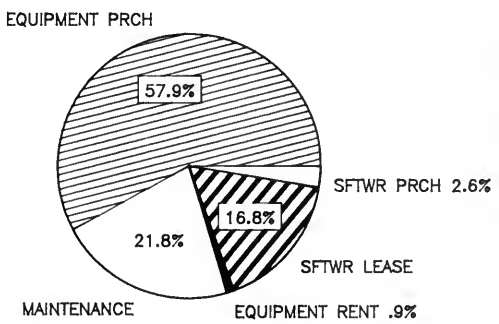


EXPENDITURES AND BUDGETS

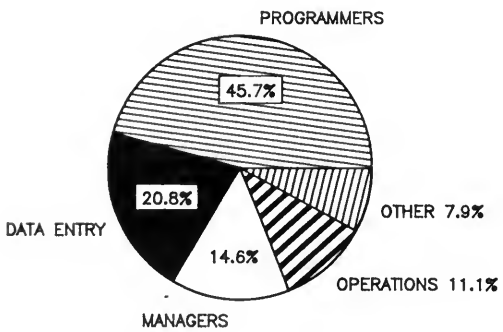
A further analysis of fiscal year 1986 expenditures reveals that salaries for programmers and analysts account for almost half of all salaries for information system related positions. It should be noted that salaries for positions, such as word processing operators, statisticians, and other professional positions which use, but do not support the use of computers, were not included in this analysis. It is also apparent that purchase, amounting to 57.9% of the state's investment in computer systems, is by far the preferred means of acquiring equipment. Software and maintenance expenses, at 19.4% and 21.8% respectively, comprise the remaining cost of owning computer systems.

All equipment, software and personnel costs incurred by the central computer center were included along with agency expenditures. The remaining costs of operating the center which include rent, training, printing, office supplies etc. are depicted as "Miscellaneous" in the pie chart labeled OTHER. External contracted services, generally for data entry and computer processing amounting to just over $636,000, is an indication that the state prefers to own and operate its computer systems versus paying for use of privately owned systems. However, the cost of developing and operating the Montana Medicaid Information System is not included in this analysis. This system is currently operated by a private contractor for approximately $200,000 per month. Other costs of operating information systems include supplies (ie. paper and microfilm), and communication services (ie. voice and data).

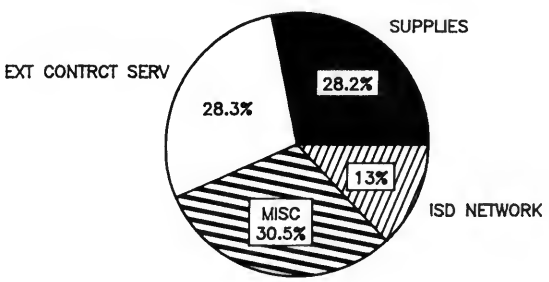
Information System Expenditures
FY86 – $17,690,000



EQUIP/SFTWR – $6,305,000



PERSONNEL – $9,131,000



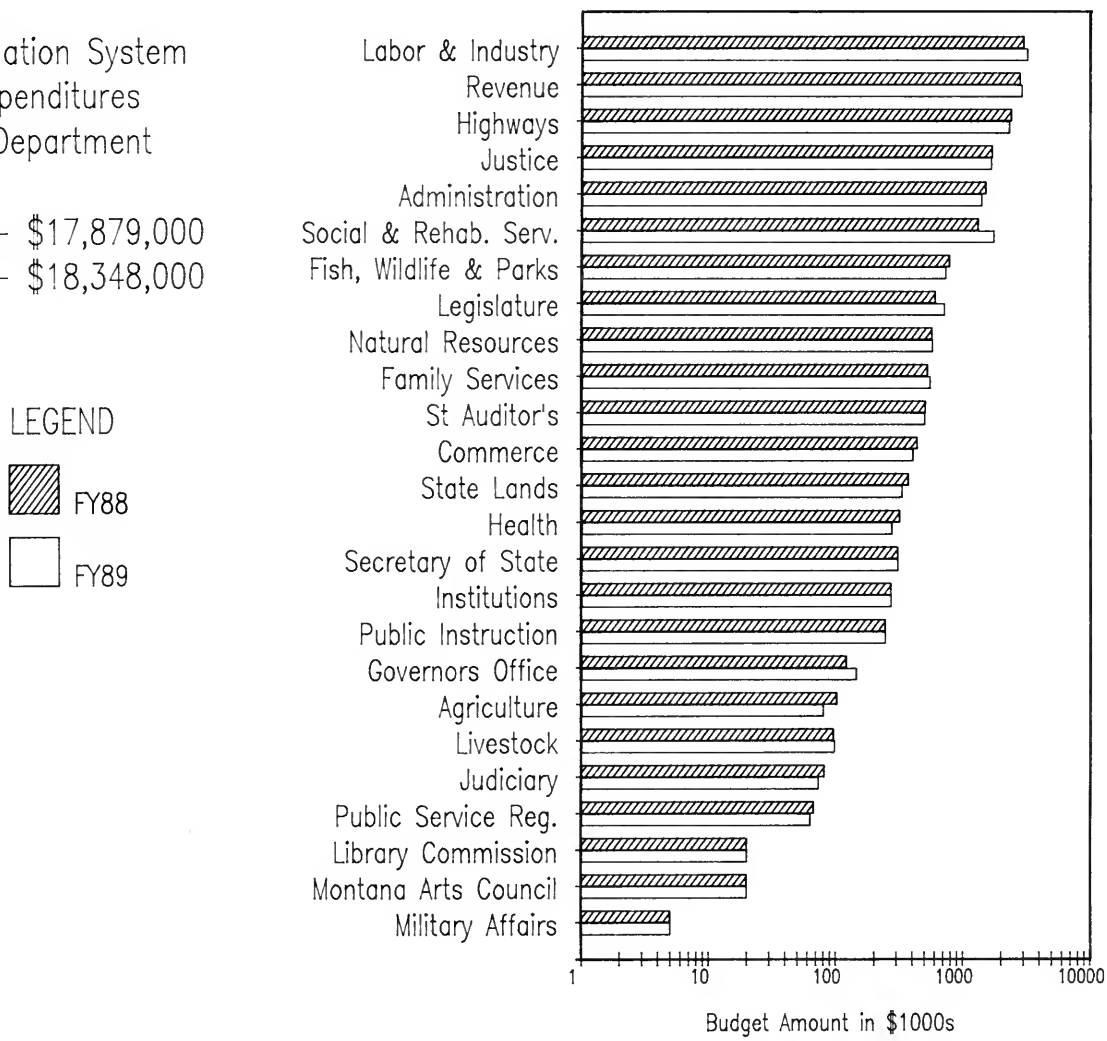
OTHER – $2,254,000

EXPENDITURES AND BUDGETS

Agency budgets for information systems vary significantly from less than $10,000 to almost $3,000,000. Distribution of budgets for information system related activity is depicted below using a logarithmic scale. As indicated before budget data for the Montana Medicaid Information System is not included. In general, agency budgets for fiscal year 1989 approximate fiscal year 1988 budgets. The average agency budget for FY88 is just over $700,000. Six agencies have budgets in excess of $1 million dollars, twelve agencies are between $100,000 and $999,999, and seven agencies are budgeted less than $100,000.

Information System Expenditures by Department

FY88 – $17,879,000
FY89 – $18,348,000



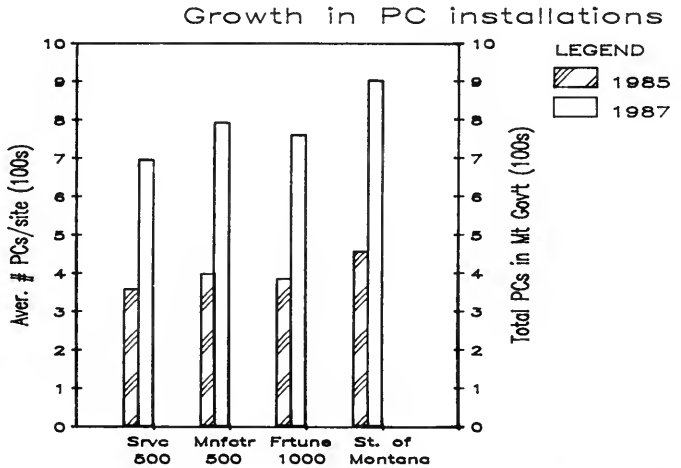
NOTE: Logarithmic scale used due to large variance

EQUIPMENT REVIEW

The rate of growth in personal computer usage in state agencies parallels the trend in the private sector. The chart on page 28 shows the average number of personal computers installed in a representative sample of Service 500, Manufacturing 500, and Fortune 1000 firms in comparison with state agencies.

Multi-User computers allow several people to share the same processor and storage devices, and can accommodate several applications simultaneously. Single-User computers process one application at a time for an individual user. The trend has been toward increased use of Single-User computers to accomplish tasks that are primarily localized. Multi-User computers coordinate data transfer between Single-User systems, and process large or highly complex applications. State agencies are budgeted to spend $3,642;066 on Multi-User Computer acquisition and maintenance in FY88 and $3,616,463 in FY89; and $903,040 for Single-User Computer acquisition and maintenance in FY88 and $1,247,173 in FY89.

Agency	Multi User Model (quantity)	Single User Qty
Department of Administration	Honeywell, Data General IBM 3081, IBM 4381, Wang VS,	111
Department of Agriculture	Televideo 816/40	20
State Auditors Office	Wang VS65	2
Department of Commerce	AT&T 3B2 (4), DEC Micro Vax II, Micro Data 3000, Alpha Micro	22
Dept of Fish, Wildlife & Parks	ACE Discovery (3), ParaDynamics (2)	63
Governors Office		21
Dept of Health & Environ Science		51
Dept of Highways	DEC VAX (Intergraph)	59
Historical Society	Altos 586	8
Department of Institutions	IBM S38	83
Department of Justice	IBM 8130 (2), Televideo 816	24
Judiciary	IBM 5525	1



Source: Forrester Research Inc. and ISD I/S Inventory

Agency	Multi User Model (quantity)	Single User Qty
Labor and Industry	IBM 8130 (2), IBM 8140 (4), IBM 8150 (2), Wang VS	105
Dept of State Lands		62
Legislative Branch		50
Library Commission		9
Department of Livestock		9
Department of Military Affairs	Televideo 802 (2)	6
Natural Resources & Conservation	Honeywell DPS/6	25
Office of Public Instruction	Honeywell Level 6, Televideo 816	46
Public Service Regulation	IBM S36	13
Department of Revenue	IBM 8130, IBM 8140, Alpha Micro	41
Secretary of State	Televideo 806 & 816	
Social & Rehabilitation Services	Honeywell DPS/6	74
Total	47	905

ACKNOWLEGDGEMENTS

The Department of Administration thanks the many people who contribute their efforts to develop plans for the use of information technology in Montana state government. Please contact the agencies for further information regarding agency directions.

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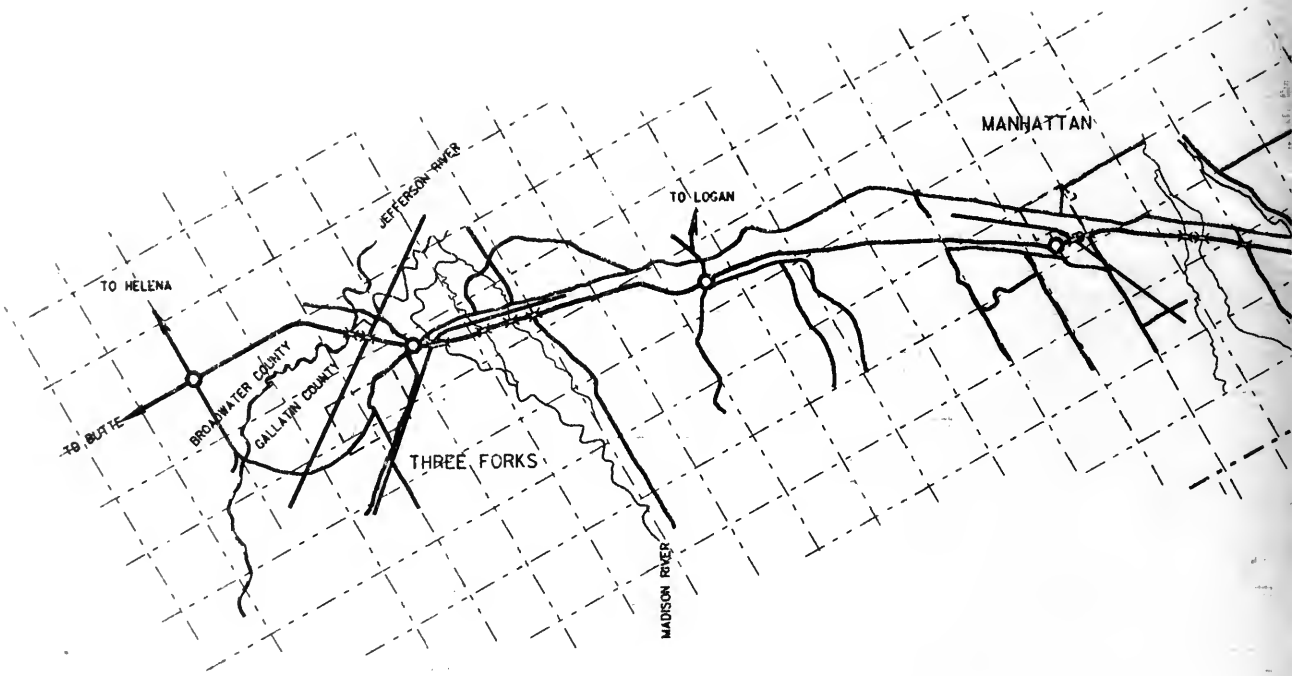

The map was digitized by the Department of Highways, using an Interact Workstation. Several existing maps were combined into one large map for a road design project.

250 copies of this public document were published at an estimated cost of $2.00 per copy, for a total cost of $500.00, which includes $500.00 for printing and $.00 for distribution.